SIEMENS

SIMOMED HC

AX

Adjustment

SIMOMED

Adjustment SIMOMED

Document revision level

The document corresponds to the version/revision level effective at the time of system delivery. Revisions to hardcopy documentation are not automatically distributed.

Please contact your local Siemens office to order current revision levels.

Disclaimer

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General Remarks

Safety Information

The DHHS regulations have been met by this monitor under the following circumstances:

- No components may be replaced inside the monitor.

  Exception: when a modification or upgrade is initiated by Med. Adjustments are made via the service software or the front keys only.

- 110/230 V are present inside even if the power switch is OFF.

General Information

The Simomed HC is a 17" b/w landscape multisync monitor for progressive video scanning. The unit receives the video and synch information via three BNC connectors located at the rear.

The front keys are locked. The unlock is handled by the service software.

If there is a malfunction, the monitor is completely replaced.

Tools, auxiliary device and tests

- Laptop with Windows interface (3.1 or compatible version).
- Serial interface cable (0- modem cable)

  According to AR TD Part 3, Part Number 99 00 440 RE999.

- For some modalities, the monitor multi-norm testbox is required to perform adjustments. (per AR TD Part 3, Part Number 97 16 754 Y4905.)
- Mavo monitor (Part Number 97 16 754) or Luminance Spotmeter (Germany only).

Installing the monitor

- Unpack the monitor and check for physical damage.
- Place the monitor in a position where no lights, windows, furnishings with a shiny surface or bright walls can be reflected onto the screen.
- If the monitor is brought in from a cold environment, condensation may occur inside the unit. Do not switch on immediately, wait a brief period.

Connect Video and Power

- Connect the video cable to the labeled video BNC socket. With separate sync signals similar to ACOM.PC, connect the H-sync and V-sync cables accordingly.

- Connect the power cable. For a PC-based system, connect the monitor to the PC power outlet.

- Connect the ground cable at the designated terminal (this does not apply for PC-based systems such as ACOM.PC).
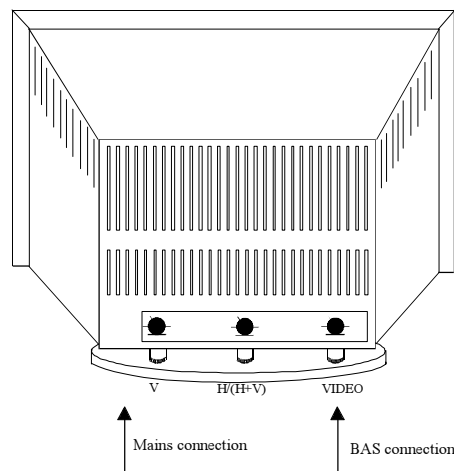

Fig. 1:

- Use clamps to stress-relieve of cables.
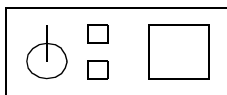- The cables can be run through the monitor base.

Fig. 2:

Switch on the monitor by using the power switch (front right).

The green LED should go on. The yellow LED lights up if the video signal is missing!

The monitor automatically recognizes the video timing being used, and sets the preprogrammed values.

Depending on the graphics controller and the current position of use, it may still be necessary to readjust the geometry according to the video timing.

NOTE	**PC-based systems (e.g. ACOM.PC) might have a video standard which is not preprogrammed at the monitor. The check of geometry, focus, brightness and contrast is mandatory.**

Installation of the service software and connection

1. Connect the 0-modem cable between PC and Monitor. The serial interface connector is found behind the front lid.

2. Insert the supplied service diskette in the disk drive.

3. Select drive A in the Windows file manager.

4. Double-click on the SETUP.EXE file to start the program; the installation routine will install the service software to PC.

5. Follow the on-screen instructions.

6. Start the application by double clicking the relevant icon.

7. The actual parameters of the monitor are downloaded (polled) automatically.

| NOTE | **For the latest information, check the README.TXT file.** |

Lock and unlock of front keys

Press the >Disable/Enable Front Keys< softkey button in the service platfor.

Alternatively:

1. By simultaneous pressing SHIFT- CTRL(STRG) - U : Front keys are unlocked.

2. By simultaneous pressing SHIFT - CTRL(STRG) - L : Front keys are locked.

| NOTE | **Lock the front keys again once the installation or service is finished.** |

Basic adjustments using the front keys

The following adjustments are done without the Service PC unless the front keys are unlocked.
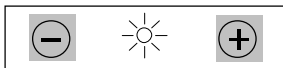
Adjust by pressing the brightness key.

Fig. 3:

Adjust by pressing the contrast key.

Fig. 4:
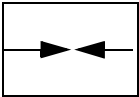
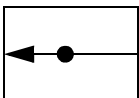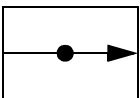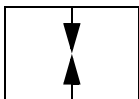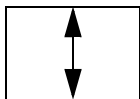| NOTE	**For adjustment, refer to Luminance calibration.**
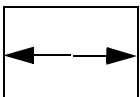
Press the "Wrench symbol key ⟳ " for approx. 1 s to access the adjustment mode. The on screen display then appears which represents the function to be set. Continue pressing the keys to cycle through the different functions.
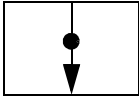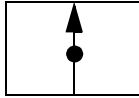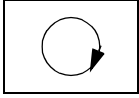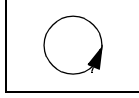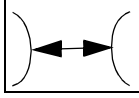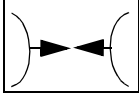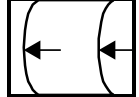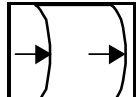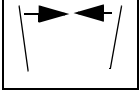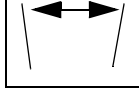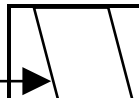

Fig. 5:

The settings are changed using the contrast keys. Brief taps of the respective key changes the value by one step. If the key is kept pressed, the value is adjusted continuously.

After 10s inactivity, the monitor automatically switches back to normal operation and saves the set values.

Adjustment function		Contrast -		Contrast +
Horizontal Size		*Fig. 6:*		*Fig. 7:*
Horizontal Center		*Fig. 8:*		*Fig. 9:*
Vertical Size		*Fig. 10:*		*Fig. 11:*

Adjustment function		Contrast -		Contrast +
Vertical Center		*Fig. 12:*		*Fig. 13:*
ROTATE		*Fig. 14:*		*Fig. 15:*
PIN		*Fig. 16:*		*Fig. 17:*
BOW		*Fig. 18:*		*Fig. 19:*
TRAP		*Fig. 20:*		*Fig. 21:*
SKEW		*Fig. 22:*		*Fig. 23:*

NOTE **The monitor has been exactly adjusted in the factory using an automatic high-performance image processing system. Many of these optimized settings cannot be observed without an appropriate test image and without a trained eye; therefore only modify them if required.**

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Basic geometry adjustments with the PC

Select the desired adjustment with the mouse pointer and adjust values with the corresponding slider.
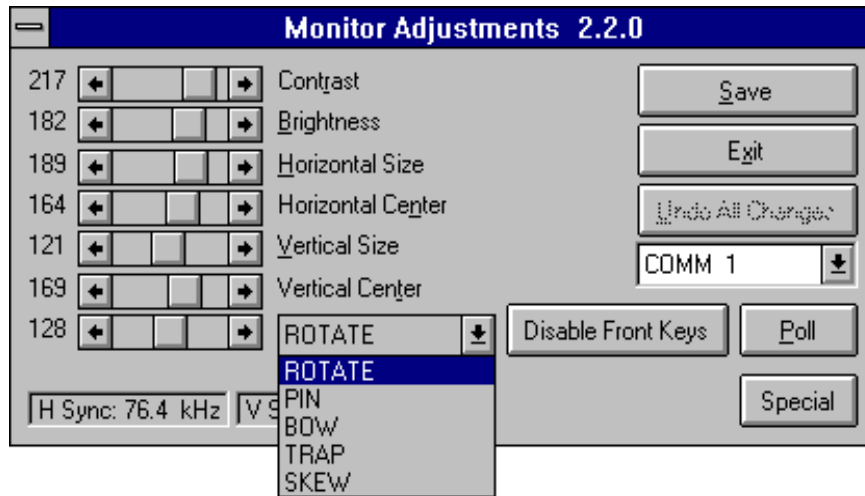
Fig. 24:

Press SAVE to store the values in the non-volatile memory of the monitor.

Special adjustments with the PC

Select the SPECIAL soft key button. Type in the password >*********< .

For the password, see the password list on the Intranet (same as SIMOMED HM).

Fig. 25:

Additional functions for focus and luminance are available. Select the desired adjustment using the mouse pointer and adjust the values with the corresponding slider.

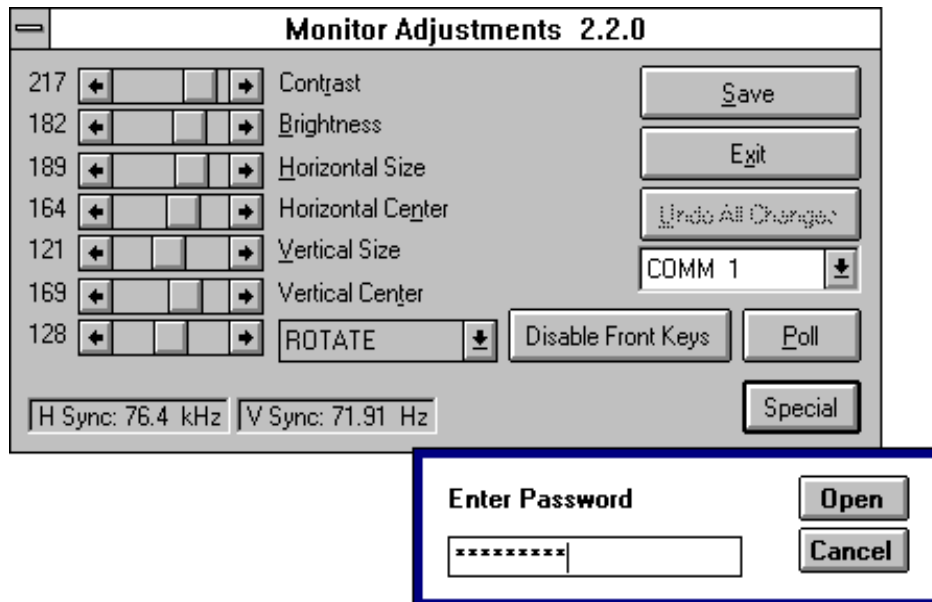To adjust focus use preferably a dotted test image. Use the corresponding slider for the various focus positions on the screen. Adjust to maximum sharpness.

For luminance calibration, follow the enclosed instructions.

Luminance calibration

For image acceptance of a CRT (Cathode Ray Tube, Monitor), there are two things important for medical diagnostics:

1. defined contrast between the grey steps (the optimum is a perceptual linearity)
2. the same subjective impression of a medical image on different modalities, monitors and cameras.

Prerequisites

1. Only use calibrated luminance measuring instruments.
2. The screen must be cleaned before measurement.
3. Check environmental brightness: Turn off the monitor. Measure the luminance at the surface of the monitor, emitted from the surrounding light sources. The luminance must be less than 0.10 cd/m^2. Otherwise reduce the room light. If the room light can't be reduced, cover the CRT with a dark cloth during the measurement in black or add the measured luminance level to each of the reference value.
4. The monitor must be switched on for at least 30 minutes before start of adjustment.
5. Use the test image with 10% center field (IQAP) or a grey scale test pattern of the particular digital system (preferably the SMPTE test image). If a digital test image is not available use the Monitor Multinorm Test Box.
6. Keep same measurement position on screen during all measurements!
7. Pay attention to correct (default) window and center values.

8. For use on PC systems (e.g. ACOM PC).

   To avoid burn-in effects of "white" windows, the desktop settings should be adapted as follows:

   Prerequisites: Right-click on the Desktop and select Properties. The following dialog box will appear. Set the background color for the activated window to gray (see arrow).
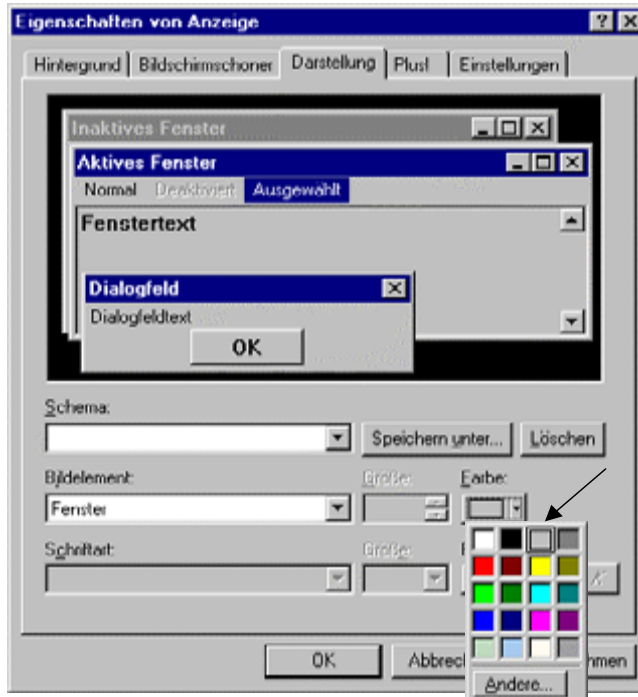
Fig. 26:

NOTE	If a S/W test image is not available, a black or white image can be generated with the ACOM PC as follows.
	Load a patient scene with "file open".
	White image: Set the slider for Windowing to:
	WT = 1 and WB = 0.
	Black image: Set the slider for Windowing to
	WT = 255 and WB = 254

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Fig. 27:

After finishing the calibration, press SAVE to store the values in the non-volatile memory of the monitor.

NOTE	**By pressing the UNDO ALL CHANGES soft key, the latest changes will be cancelled.**

Adjustment Procedure

NOTE	The adjustment sequence must be observed. If the "wrong" controller is changed, it is necessary to "start over"!

Pre-setting:

=> min. means to the left stop (minimum value).

=> max. means to the right stop (maximum value).

The white measuring field (100% white) should be approx. 10% of the screen area.

A cover cloth must be used for the measurements (scattered light).

Tab. 1   Adjustment

Slider pre-setting!	Adjuster	Measurement values with the Mavo monitor.
Brightness at min. Contrast at min. ContMin / BrtMin at min.	Bright Min.	Adjust to 0.2 cd/m, - 0 / + 0.1 cd/m in the black area.
Brightness at max. Contrast at min. ContMin / BrtMax at min.	Bright Max.	Background brightness. Adjust to 3.0, +/- 0.3cd/m in the black area.
Brightness at min. Contrast at min.	ContMin / BrtMin	=> Using the SMPTE test pattern: Adjust so that the white measuring field is still just visible. => Without the SMPTE: Adjust so that the image contents (100% white) to the postblanking circuit is still just visible. This corresponds to 0.2 cd/m to 0.3 cd/m in the white measuring field.
Brightness at min. Contrast at max.	ContMax / BrtMin	Adjust the brightness in the white measuring field to 200 cd/m, +/-5 cd/m.
Brightness at max. Contrast at min.	ContMin / BrtMax	Adjust the brightness in the white measuring field to 3.2 cd/m, -0/+ 0.1 cd/m (the white measuring field must just be detectable).
Brightness at max. Contrast at max.	ContMax / BrtMax	Adjust the brightness in the white measuring field to 250, +/- 5cd/m.

Slider pre-setting!	Adjuster	Measurement values with the Mavo monitor.
Brightness at max. Contrast at min.	Brightness	Adjust the brightness in the black measuring field to 0.6, +/- 0.15 cd/m.
Contrast at max.	Contrast	A value of 210, +/- 10 cd/m must result in the white measuring field or it must be possible to set this value with the contrast slider. If this value is not reached, the entire adjustment must be repeated or the picture tube is worn out!

Cleaning and preventive maintenance

- Always use a damp AND NOT WET cloth.
- To clean the screen, apply a household glass cleaner to a cloth and wipe the screen.
- Do not use solvents or abrasives. It might discolor the housing and affect the anti-glare treatment off the screen.
- Check annually geometry and focus.
- To compensate the ageing effect of the monitor CRT, check annually the luminance values and calibrate if required.
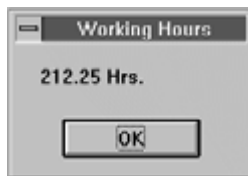- Check and record the working hours by pressing the corresponding key.

Working Hours

212.25 Hrs.

OK

Fig. 28:

Information sources and support services

- Check README.TXT, found on the delivered service software, with a standard editor for additional help.
- For service problems, call your support center.

Changes to Previous Version

Adjustment procedure changed.